British Birds

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J. J. Swift

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Three Shillings

December 1960

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AN ILLUSTRATED MONTHLY JOURNAL

Edited by

P. A. D. Hollom E. M. Nicholson
I. J. Ferguson-Lees Stanley Cramp

Photographic Editor: Eric Hosking

Hon. Editors: W. B. Alexander N. F. Ticehurst

Editorial Address: 30 St. Leonard's Avenue, Bedford

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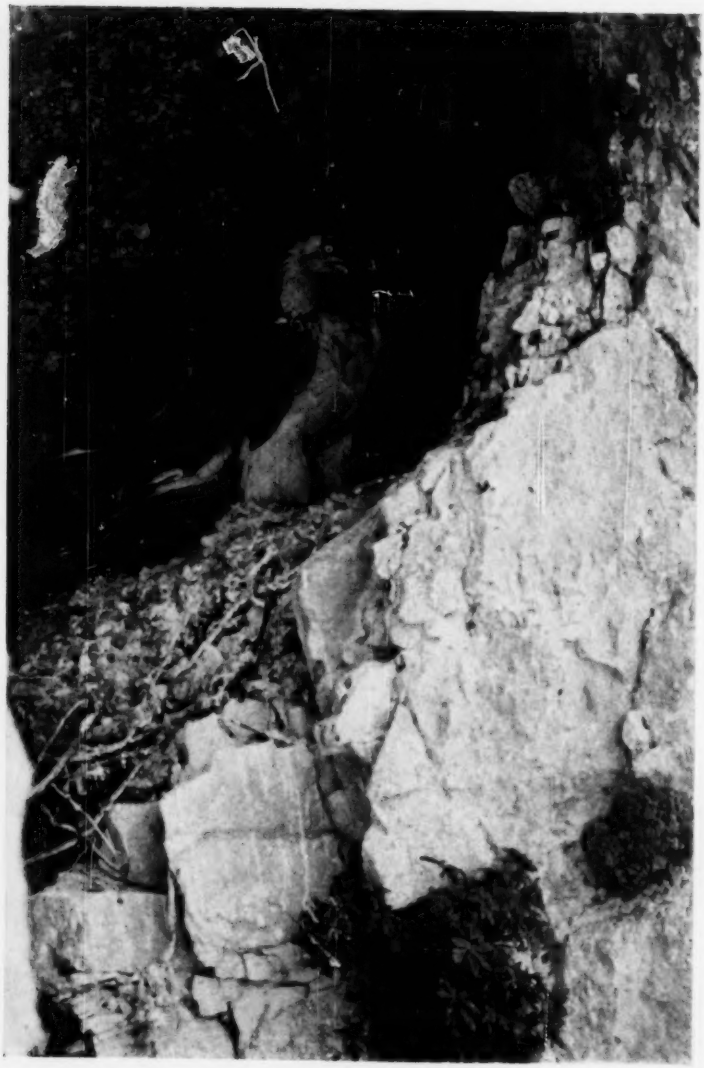

FRONTISPIECE TO VOLUME 53. Lammergeier (*Gypaëtus barbatus*) at nest, Spain, June 1959, showing the deep orange colour on the head and under-parts (see page 29)
(*colour blocks by courtesy of Kodak Limited from a Kodachrome by Eric Hosking*)

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Volume 53

1960

H. F. & G. Witherby Ltd
5 WARWICK COURT LONDON WC1

Printed in England by Diemer & Reynolds Ltd., Bedford

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VOL. 53 NO. 12
DECEMBER 1960

The Little Ringed Plover in Great Britain during 1957-59

By E. R. Parrinder

IN 1959, TWENTY-ONE YEARS after the species first nested at Tring Reservoirs, Hertfordshire, just under 100 pairs of Little Ringed Plovers (*Charadrius dubius*) are known to have spent the summer in Britain. This is a sizeable increase from the number, about 70 pairs in 1956, at the end of the period covered by the last report on their status (*Brit. Birds,* 50: 365-371).

Although the total number recorded has increased, the breeding range has been extended to only one new county. A pair probably bred in Warwickshire in 1958 and four pairs certainly bred there in 1959. Breeding has now occurred in every county in England south of the Tees except for Norfolk, Rutland, Lancashire, Shropshire, Worcester, Hereford, Wiltshire and the four counties to the south-west. Rather less than three-quarters of the summer population is in the counties south-east of a line from the Wash to the Severn. North of this line, the main concentration is in Lincolnshire and Yorkshire, where five and ten pairs respectively summered in 1959.

In Norfolk, the only east coast county south of the Tees where breeding has not yet been proved, Little Ringed Plovers were seen on passage in each of the years from 1957 to 1959, especially at Cley, Salthouse and Wisbech sewage farm (*Norfolk Bird Reports* and *per* M. J. Seago). West of the breeding counties, one or two were seen on passage in Lancashire in 1958 and 1959 (*per* K. G. Spencer); in Shropshire in 1957 and 1958 (*per* E. M. Rutter); in Worcestershire in 1959 (*per* J. Lord) and in Somerset in 1958 (*per* H. H. Davis). One by receding floods at Lugg Meadows, Sutton St. Nicholas, on 18th April, 1959, was the first record for Hereford (*per* R. H. Baillie) and one by Poole Harbour on 2nd April 1959, and one at Weymouth on

8th September 1959, were the second and third recorded in Dorset (*per* A. J. Bull).

Perhaps the most interesting development since the last report is the exceptional number seen after the breeding season in 1958 and 1959 at sewage farms near London. In 1959, for example, 26 were seen on 19th July on one stretch of mud at Perry Oaks, Middlesex, while at Rye Meads, Hertfordshire, there were 35 on 26th July and more than 40 on the 29th.

The details which follow are confined to nesting records and to occurrences in counties where nesting has occurred. I am grateful to the observers named and to the editors of local reports who have borne my pestering with patience and supplied me with information as soon as they have received it themselves.

HAMPSHIRE

Nested 1952 and as under.

1957. A pair by Southampton Water in April and May, but no sign of nesting. A pair reported as nesting unsuccessfully in another locality (*Hampshire Field Club Orn. Report 1957*).

1958. Again seen by Southampton Water but no breeding. A pair nested at a new site (not the second one mentioned above) (*Hampshire Field Club Orn. Report 1958*).

1959. One pair nested (*per* J. H. Taverner). Two were seen in June at a previously unrecorded locality, where it seems that Little Ringed Plovers may have summered in each of the four previous years (*per* W. D. Campbell).

SUSSEX

Has nested annually since 1949.

1957. Four pairs were present at the original breeding place, but it is not known whether they nested. One pair nested successfully at another site (*Sussex Bird Report 1957*).

1958. Two pairs summered at the usual site, but there was no evidence of breeding. At the second site, three young were hatched from the second attempt (*Sussex Bird Report 1958*).

1959. None seen at the original site. Breeding was not proved at the second site, but a pair was seen there in July and August, two flying young in late July and one in early August (*per* D. D. Harber).

KENT

Nesting proved in most years since 1947.

1957. In the London area, one or two were seen on the Thames marshes in April, June and September; a party of four on 8th August included two juveniles, but there was no direct evidence of nesting

(*London Bird Report 1957*). Outside London, two pairs are known to have nested out of about six pairs present at three sites—including one new site. Reported from nine localities on passage, the maximum being 12, including a resident pair, on 26th May (*Kent Bird Report 1957*).

1958. A pair laid at one site in the London Area, but eventually deserted; at another site a pair behaved as if breeding, but no proof was obtained (*London Bird Report 1958*). Elsewhere, six pairs attempted breeding at five sites (two new); breeding was successful at three sites and at least five young are known to have flown (*Kent Bird Report 1958*).

1959. About seven pairs summered at six different sites and at least four pairs are known to have bred (*per* E. H. Gillham and R. E. Scott).

SURREY

Nesting proved in most years since 1950.

1957. Three or four pairs nested at a gravel pit. Seen on passage at other pits and at Guildford, Esher and Hersham sewage farms (*London Bird Report 1957* and *per* R. K. Murton).

1958. About seven pairs summered, at five sites; five pairs are thought to have bred (*London Bird Report 1958* and *per* R. K. Murton).

1959. About five pairs present and probably bred, including four pairs at one site. Seen as usual at sewage farms and reservoirs on migration (*per* R. E. Scott and R. K. Murton).

ESSEX

Has nested annually since 1947.

1957. In the London Area, nine or ten pairs were located, at five sites; six pairs are known to have nested and two more probably did so (*London Bird Report 1957*). At least two pairs, probably three, bred in extra-Metropolitan Essex, for the first time. At Abberton Reservoir, one to three were seen on passage on many dates from 28th July to 19th September (*Essex Bird Report 1957*).

1958. Seven pairs appear to have nested out of nine located at five sites in the London Area (*London Bird Report 1958*). Two pairs again present at the site outside London (see above); the eggs of one pair were deserted and there was no evidence that the other pair attempted breeding (*Essex Bird Report 1958*).

1959. In the London Area, at least nine pairs summered at five sites, but only eleven young are known to have reached the flying stage (B. S. Meadows; *per* P. R. Colston). No breeding was reported from extra-Metropolitan Essex—the 1957-58 site was flooded and unusable. On passage one to four were seen at both Abberton and Hanningfield Reservoirs on most autumn dates to 21st September (*per* R. Hudson).

HERTFORDSHIRE

Nested 1938, 1944, 1948 and annually since 1953.

1957. Ten pairs are known to have nested in widely separated parts of the county; at least two pairs attempted a second brood (*London Bird Report 1957*).

1958. Ten pairs summered, as in 1957, and nine pairs certainly nested. Four sites had single pairs, but at the fifth six pairs nested in June after attempts in May by four pairs had been frustrated by flooding. At Broxbourne sewage farm, twelve were seen on 8th July and 16 from 23rd to 29th July (*London Bird Report 1958*).

1959. At least five pairs summered, at three sites, and four pairs are known to have bred. Exceptional numbers were recorded throughout July at Rye Meads sewage farm; maxima were 12 on 1st July, 14 on the 8th, 10 on the 22nd, 35 on the 26th and more than 40 on the 29th (*per* B. S. Meadows and P. R. Colston).

MIDDLESEX

Nesting proved in most years since 1944.

1957. Four out of five pairs summering are known to have nested. On passage up to ten were seen at Perry Oaks sewage farm in May, July and August and up to three at Ponders End sewage farm from the end of July to 4th September (*London Bird Report 1957*).

1958. About seven pairs were located at two sites; eight nests were found at one site, but there was a heavy loss of eggs due to flooding and possibly to human predation and disturbance, and not more than two broods are likely to have flown. Maxima on passage, eight at Perry Oaks sewage farm on 12th April and 13 on 5th and 17th July. On 27th August, one was seen in Regent's Park—the first occurrence in Inner London (*London Bird Report 1958*).

1959. At least four pairs nested successfully; one clutch is known to have been robbed by a collector. As usual, birds were noted on passage at reservoirs and sewage farms; and at Perry Oaks sewage farm no less than 26—including 23 juveniles—were seen on one stretch of mud on 19th July (many observers *per* P. R. Colston).

BERKSHIRE

Nesting proved in most years since 1947.

1957. Two pairs were located in the Kennet valley; a nest was found and later the presence of young was suspected but not proved. At Ham sewage farm, up to three were seen regularly from 29th March to 9th September; display was seen on several occasions and up to five free-flying juveniles occurred in the late summer, but there was no proof of breeding (*Oxford Orn. Soc. Report 1957* and *Middle Thames Naturalist 1957*).

1958. At least three pairs were located and probably bred in the Kennet valley. Two pairs bred at Ham sewage farm, but the fledging success seems to have been small and five juveniles seen with six adults on 10th August were probably on passage (*Middle Thames Naturalist 1958* and *per* W. D. Campbell).

1959. About six pairs summered in the Kennet valley and at least three pairs are thought to have nested (*per* W. D. Campbell). At Ham sewage farm, two were seen on 29th March and then through April and May; anxiety calls were heard but there was no positive evidence of breeding (*per* C. M. Veysey).

OXFORDSHIRE

Nested 1954 and as under.

1957. One pair bred successfully (*Oxford Orn. Soc. Report 1957*).

1958. One at former breeding site on 30th March. Two at Park Meadow, Oxford, 22nd April (*per* W. D. Campbell).

1959. Two pairs were found in a new locality; both pairs nested successfully, one pair laying two successive clutches of three eggs and rearing two young from each clutch. This site had not been closely watched in other years and previous breeding may have been overlooked (G. and M. Turner, M. H. Rowntree *per* W. D. Campbell).

BUCKINGHAMSHIRE

Has nested occasionally since 1949.

1957. Three or four pairs were seen at one locality and at least two pairs bred; a pair was seen during the summer at a new locality in the north of the county (*Middle Thames Naturalist 1957*).

1958. At the first locality mentioned above, two were seen on 30th March, five or six on 22nd April and two pairs on 5th June. By then, soil dumping had started and the possible breeding area was submerged during the summer—no birds were seen after 5th June. At least one of two pairs at another site behaved as if breeding (*per* C. M. Veysey).

1959. At least one pair, probably two, bred at one site and a pair may have bred at another (*per* C. M. Veysey).

SUFFOLK

Nested annually 1948-53 and as under.

1957. One at Walberswick on 5th and 6th August and one at Easton and Covehithe Broads on 8th September (*Suffolk Bird Report 1957*).

1958. A nest containing four eggs was found, but three failed to hatch. At one stage the army practised landing exercises over the site, but afterwards the birds were found still sitting on a nest straddled by

wheel ruts; the lack of hatching success was attributed to the cold, wet June. Immature birds were seen at Walberswick on 16th and 17th August and at Bury St. Edmunds on 24th August (*Suffolk Bird Report 1958*).

1959. Single birds at West Stow sewage farm on 3rd May, Minsmere on 29th July, Walberswick on 29th July and 12th August, the River Orwell on 8th August and Bury on 23rd August. Two at a previous breeding place on various dates from 10th May to 27th June, but no evidence of nesting (*per* H. R. Beecroft).

CAMBRIDGESHIRE

Has nested annually since 1952.

1957. Two or three pairs bred at Cambridge sewage farm and four pairs bred at two other localities. Three pairs were seen at Wicken Mere in April (*Cambridge Bird Club Report 1957*).

1958. Three pairs bred at Cambridge sewage farm and one pair at another locality (*Cambridge Bird Club Report 1958*).

1959. Four pairs bred at the sewage farm and a pair nested at each of two other sites, one of them a new locality (*per* A. E. Vine).

BEDFORDSHIRE

Nested 1951, 1956 and as under.

1957. Three pairs bred at one gravel pit; at another pit two pairs were seen and one pair certainly nested (*Bedfordshire Naturalist 1957*).

1958. At least seven pairs were seen at gravel pits and six pairs are known to have nested (*Bedfordshire Naturalist 1958*).

1959. About seven pairs summered, but owing to lack of observation the breeding success is unknown (*per* H. A. S. Key).

HUNTINGDONSHIRE

Nested 1952 and as under.

1957. Two pairs probably nested near St. Ives where five or six flying young were seen on 1st August. In the south of the county, a pair probably made two attempts to nest, the eggs being taken by Carrion Crows (*Corvus corone*) (*Hunts. Flora and Fauna Soc. Report 1957*).

1958. A pair bred successfully at a gravel pit and another pair probably nested at a second (*Hunts. Flora and Fauna Soc. Report 1958*).

1959. Three pairs nested; at one site a nest was discovered with *five* eggs on 28th June, but it was found deserted on 2nd July (*per* C. F. Tebbutt).

NORTHAMPTONSHIRE

Nesting proved in most years since 1953.

1957. Three, possibly four, pairs bred at two sites (*per* R. Felton).

1958. Five pairs are believed to have nested, but only one was successful in rearing young (*per* R. Felton).

1959. At least five pairs summered and four pairs bred, including a pair at a new site (*per* R. Felton and M. Goodman).

GLOUCESTERSHIRE

Nested 1953-55.

1957. No records.

1958. Single birds seen at different sites in April, May and August, but no evidence of nesting (*per* C. M. Swaine).

1959. Single birds at two gravel pits in April, but not subsequently; one at a gravel pit on 30th August and 3rd and 6th September (*per* C. M. Swaine).

WARWICKSHIRE

First nesting record 1959.

1957. In one area two were seen on 31st August and one on 3rd September. In another (and new) locality, one was seen on 22nd September (*per* J. Lord).

1958. Two adults and two juveniles frequented the new locality mentioned above in July. The juveniles were capable of weak flight when first seen in early July, so breeding was not proved although highly probable. Single birds seen in another area on dates between 4th and 15th May (*per* J. Lord).

1959. Certainly three, probably four, pairs bred in one area and one pair in another. These are the first definite breeding records for the county (*per* J. Lord *et al.*).

STAFFORDSHIRE

Nested 1952.

1957. A pair was seen at a gravel pit during June, but there was no evidence of breeding. One or two at Cannock and Blithfield Reservoirs on autumn passage (*per* J. Lord).

1958. A pair at a gravel pit during May and June was not proved to be breeding. One or two seen at reservoirs in spring and autumn (*per* J. Lord).

1959. Occasional birds seen on passage in April-May and July-September with maximum of six at Blithfield Reservoir on 27th July and 12th August (*per* J. Lord).

LINCOLNSHIRE

Has nested annually since 1950.

1957. One pair summered at the original site and two pairs at another site in the same area (*Lincolnshire Bird Report 1957*).

1958. Four pairs attempted breeding and a fifth pair stayed the summer (*per* A. D. Townsend).

1959. About five pairs summered, at four sites, and at least three pairs nested (*per* A. D. Townsend).

LEICESTERSHIRE

Has nested annually since 1955.

1957. Four pairs attempted breeding; two nests were destroyed by flooding at one site, but two clutches hatched successfully at another (*per* R. A. O. Hickling).

1958. Three pairs bred successfully (*per* R. A. O. Hickling).

1959. At least three pairs bred successfully (*per* R. A. O. Hickling).

NOTTINGHAMSHIRE

Nested 1956 and as under.

1957. Four pairs were present in the breeding season and two pairs probably bred. Increased numbers were noted on passage in the autumn (*Report on the Birds of Nottinghamshire 1955-1957*).

1958. Two pairs bred successfully. On passage there were 18 records of one to two birds from 4th April to 3rd June and 27 records of one to three from 12th July to 21st September (*per* A. Dobbs).

1959. Two pairs nested. On passage, one to six were seen at localities in the Trent Valley from 5th July to 22nd August (*per* A. Dobbs).

DERBYSHIRE

Nested 1950, 1956 and as under.

1957. At least three pairs attempted to nest with unknown success. One at Barbrook from 29th May to 6th June was the first in the Peak District (*Derbyshire Bird Report 1957*).

1958. Seven pairs summered at five sites and all are believed to have bred; eight young were caught and ringed (*per* D. R. Wilson).

1959. About four pairs summered; one pair certainly nested and four chicks were ringed, two other pairs may have nested (*per* D. R. Wilson).

CHESHIRE

Nested 1954.

1957. One at a sandpit near Northwich in June (*Merseyside Naturalists' Association Bird Report 1957-1958*, *per* E. Hardy).

1958. One at ironworks pool on Cheshire/Flint border on 8th August and 24th-31st August (*Merseyside Naturalists' Association Bird Report 1958-1959* and *per* T. H. Bell).

1959. No records received.

YORKSHIRE

Has nested annually since 1947.

1957. Five pairs bred in one area and in two other areas breeding by a single pair was suspected (*Y.N.U. Orn. Report 1957*).

1958. At least seven pairs nested in three areas (*Y.N.U. Orn. Report 1958*).

1959. Eight pairs reared young and two more probably did so (*per* R. Chislett).

SUMMARY

The status of the Little Ringed Plover (*Charadrius dubius*) during 1957-59 is given year by year for each of the 24 counties in which it has bred (largely south-east of a line from the Wash to the Severn, apart from Lincolnshire and Yorkshire). In 1959 nearly 100 pairs bred, but since 1956 Warwickshire is the only new county colonised. Passage records included a few in the west and exceptional numbers around London.

Studies of less familiar birds

109. Black Wheatear

By I. J. Ferguson-Lees

Photographs by M. D. England

(Plates 64-67)

THE BLACK WHEATEAR (*Oenanthe leucura*) has a very restricted range in south-west Europe and north-west Africa. In Europe it is confined to Portugal, the southern three-quarters of Spain (including the Balearic Islands) and the small part of south-eastern France and north-western Italy between Marseilles and Genoa (thus particularly associated with the region of the Riviera and the Maritime Alps); it probably does not now breed in Sardinia or Sicily (*cf. The Handbook*). The African population, regarded as a separate race *syenitica*, is found from the Rio de Oro and Morocco to Algeria, Tunisia and Tripoli. The species as a whole is largely resident, apart from moving down from the higher ground in winter, and so it is not surprising that it has seldom been recorded outside these areas. Only four British occurrences are now accepted (see Hollom 1960). Being a rather shy bird with such a limited range, this species is familiar to comparatively few ornithologists and has not received much serious study; indeed, hardly anything of significance has been published about it since *The Handbook* appeared over 20 years ago. The scattered observations which make up this text may therefore be of some value and it is hoped that they and M. D. England's excellent photographs may

perhaps encourage others to watch a most attractive and interesting bird.

The Black Wheatear breeds at all levels from the coast to about 6,500 or 7,000 feet, though the African form is particularly associated with the foot-hills at the edge of the Sahara and the stony lower slopes of the Atlas Mountains. In the region of Almeria in Spain, where these photographs were taken, it nests from near the sea to a considerable height in the mountains and, though in some other parts of southern Spain one finds it chiefly as a mountain bird, this is probably because there are fewer suitable habitats lower down. It is much less catholic in its choice of breeding place than any of the other European wheatears. The common species (*Oe. oenanthe*) is found in a variety of sites from mountains and moors, broken ground, downland and cultivated fields to seacliffs, dunes and shingle, while the Black-eared Wheatear (*Oe. hispanica*) occurs in both rocky mountain country and on grassy hillsides dotted with bushes and trees (including vineyards and rough cultivation). In the latter group of habitats the Pied Wheatear (*Oe. leucomela*) may also be found, though it is perhaps chiefly a bird of rough stony ground, low cliffs and river banks. The Black Wheatear, on the other hand, is exclusively found in barren rocky places, such as cliffs, gorges, bolder-strewn plateaux and rocky foot-hills at the edges of deserts. Trees and sparse ground cover may not be far away (plate 65a), but, generally speaking, the bulk of the breeding territory is bare and stony (plate 66a). In Europe at least its numbers are not high in most areas, though locally in Spain it is reasonably common. Other wheatears, particularly the Black-eared in Spain, live in the same places, but there is little evidence of the competition that there seems to be between the smaller species (between *oenanthe* and *hispanica*, for example). This may be because the Black Wheatear is a much bigger bird that is capable of handling larger prey and of taking over nest sites in vertical cliffs which would be unsuitable for the smaller species.

Let us look more closely at the questions of food and nest site. In the literature it is assumed that Black Wheatears live mainly on insects because the other European species are largely insectivorous. In *The Handbook* the information on food is admitted to be sparse, but insects such as ants, flies, beetles and grasshoppers are nevertheless the only examples given. In fact, however, our own rather scrappy observations suggest that quite a lot of non-insect food is taken, as one would expect with a largely resident species that has to maintain itself in places where insect food is not overplentiful in winter. At Almeria, England found that grasshoppers were the prey most frequently taken to the nest (plate 66b), but that scorpions—usually with the tail removed—were a close second. Lizards of various sizes were also brought and two of those noted were large enough for their

tails to trail on the ground when the parent birds were gripping them by their necks (even these were apparently swallowed whole by the young, however, because the visits of the parents to the nest were still only momentary). Among the other foods he recorded were berries from a thorn bush (plate 66b) (with which Black-eared Wheatears were also seen feeding their young). In 1959, in the Sierra de Cazorla nearly a hundred miles north of Almeria, I also saw a Black Wheatear with a lizard and another taking berries, I presume of *Berberis hispanica* though unfortunately I failed to make a note of this. The habitat there was a jagged limestone plateau with patches of thin grass and a sparse scattering of flowers and such shrubs as this barberry and hawthorn, rose and juniper. Thus insects large and small are apparently supplemented by a number of other animal and vegetable foods.

The nest is rather an interesting affair. The site may be any large enough hole in either natural rock or man-made walls. At Almeria, England found the species nesting in a fissure in a sandy cliff, on a ledge in a mountain cave and in ruined buildings in a mountain village (plates 66a and 65b)—buildings that had, incidentally, been the scene of fighting in the Spanish Civil War (plate 67a)! The size of the hole may vary considerably. A nest with five eggs on 3rd May 1957, in the limestone mountains above Ubrique, Spain, was in a hole 7 feet 2 inches above the ground and just over the entrance to a cave. This hole was 18 inches deep and the entrance was just over 6 inches high and over 8 inches wide; inside, the maximum width was over 10 inches and the cavity extended upwards so that there was a space of 22 inches above the nest. By contrast, another nest with five eggs on 15th May 1959, this time in the Sierra de Cazorla, was in a really tiny hole, so small that it was impossible to do more than get one's fingers in to touch the eggs; the outside edge of the nest was only 2 inches from the entrance, the back of the nest was against the back wall, and there was barely enough space for the sitting bird beneath the roof. This hole was 10 feet above the floor of a wide shelf on a steep mountain slope; it was in a vertical limestone face just above a deep recess formed by an overhang. Its position was thus comparable to the nest near Ubrique and, at least in some parts of Spain, a hole over a recess or the entrance to a cave is much favoured. Presumably such a site affords protection against ground predators.

The size of the hole has some bearing on the feature of the Black Wheatear's nesting which has always attracted most attention. Usually, but by no means invariably, the bird builds a low wall or breastwork of stones across the entrance. To describe this as a "wall" perhaps conveys the wrong impression, for it is really no more than a loose heap of dry stones. An average "wall" may be 3 or 4 inches wide and extend back for a greater distance, gradually petering out

at the bottom of the slope as single, scattered stones. There may be only one or two stones altogether—in the cases of the two nests just described there were respectively 17 and about half-a-dozen—or there may be very large numbers. Bannerman (1954) says that Admiral Stenhouse once found a nest in Andalucia with over 200 stones, while L. H. L. Irby in his *The Ornithology of the Straits of Gibraltar* describes a wall that was 9 inches long, 9 inches deep and 2½ inches high—a wall that contained no less than 282 stones with a further 76 in the foundation, making a total of 358! I suspect that such numbers are the accumulation of several years. Certainly the heap is added to when sites are used for more than one year. The largest of the 17 stones at the 1957 nest at Ubrique measured 41 × 34 × 10 mm.—roughly 1½ inches long and wide and half an inch thick. Stones of this size must be quite a burden to a bird which probably weighs less than 3 ounces itself.

Various suggestions to account for this wall of stones were put forward in the old literature. Some people thought that it might be erected to discourage predators and others subscribed to the more popular theory that the pebbles help to shield the sitting bird and her young from the driving wind, rain or dust which can be unpleasant features of the mountains of Mediterranean countries in the early summer. But these walls can be little protection against the weather and virtually none against most predators; the tendency for the chosen holes to be in vertical faces and often above overhangs is a much better guard against animal raiders, and stones are collected even in areas where most sites are well sheltered. In fact, I believe that the collection of these stones plays quite a part in the nest-site selection and courtship of a species which has fairly elaborate sexual displays. The stones are collected by the male and evidently mainly from the ground immediately beneath the nest. As a result of this, one of the nests examined by England had a wall made of lumps of plaster because the site was in a ruined building and plaster was scattered on the floor. I have watched a male take three stones in quick succession up to a hole that was apparently later discarded as a nest-site. Each stone was large enough to be plainly visible in his bill and it was evidentally a struggle for him to carry them, judging by his rapidly beating wings. The female was feeding quietly on the ground beneath the hole : id the male preceded and followed this stone-carrying with a burst of the characteristic song-flight and a curtailed version of his display dance at the nest entrance (both of which are described in *The Handbook*), after which he stood for nearly five minutes at the mouth of the hole. This same male on another occasion carried a small twig to the mouth of the nest and placed it there, while at another nest in 1957 I found half-a-dozen little sticks up to 95 mm. (3¾ inches)

long among the stones of the wall: the sticks were too thick and inflexible to be used in the nest and these two observations lead me to believe that twigs are an occasional substitute for the stones.

The nest itself is usually made largely of dead grasses with a certain amount of other vegetable matter; and, though most reference books mention a substantial lining of hair, wool, feathers and so on, those that I have examined and the ones seen by England at Almeria have had only a very scanty inside covering of rootlets and of these softer materials. As one would expect, the nest is somewhat larger than that of *Oe. oenanthe*: the diameters of the cups of two nests with fresh eggs were 70 mm. and 69 mm. (about 2¾ inches). Such details as are known of clutch size and incubation are given in *The Handbook* (II: 166 and 168). The male spends very little time at the nest once the eggs have been laid, apart from accompanying the female back to it after she has been off to feed; certainly I have no evidence that he plays any part in incubation. The female is less difficult to flush direct from the nest than are female Wheatears and Black-eared Wheatears, but she will come off only if the vicinity of the nest-hole is tapped. In the early stages of incubation the male calls her off the nest when anybody approaches. Both male and female feed the young and remove faeces and at the nest where these photographs were taken the cock did so the more frequently, though this may have been due to this particular hen's nervousness at the hide; the feeding rate was noticeably spasmodic—about six feeds at intervals of a few minutes followed by something like an hour's rest. Both birds announced their arrival near the nest by singing (see below) and the young kept up a loud wheezy and querulous note all the time the parents gave any indication of being in the vicinity. As with other wheatears, the young appear to leave the nest when little more than two weeks old—unnecessarily early, it would seem, for a well protected hole-nester. England commented on the surprisingly undeveloped and short-tailed state in which the young Black Wheatears were leaving the nest in the Almeria region.

The Black Wheatear needs little description and its main features are emphasised in the caption to plate 64. Note, however, that it is not simply a black edition of our Wheatear. This point needs to be made because there have been several cases in recent years of confusion over birds that have been either melanistic Wheatears or ones that have become many shades darker through nesting near the soot or coal of industrial chimneys. The Black Wheatear is really very much bigger. Its total length approaches a quarter as much again as any of the other European wheatears and at the same time it is a much bulkier and more thrush-like bird that at some angles recalls a small Blackbird (*Turdus merula*) rather than just a large wheatear. The white under-tail is

quite conspicuous and should strike one without being looked for specially (plate 64) from the side the black tip to the tail seems completely divorced because the white extends right round the base. The female being just a slightly duller and browner edition of the male, the two sexes are much more similar than in other European wheatears and can be difficult to distinguish in the field, especially when apart. As already mentioned, the Black Wheatears of north-west Africa are separated as a different race, *syenitica*, on the grounds that the black markings at the end of the tail are broader and that the body plumage of both male and female is browner. However, these characters are not very constant and, for example, a comparison of the patterns shown in plates 66b and 67a (male) and 67b (female) with the diagrams in *The Handbook* (II: 167) will show that the female in particular of this pair had tail markings almost as heavy as in the North African race.

The full song is quite unlike the songs of most wheatears with their rather lark-like notes. It is a warble very reminiscent of that of the Blue Rock Thrush (*Monticola solitarius*) though actually shorter and less sweet with something of the quality of that of an Orphean Warbler (*Sylvia hortensis*); it also tends to be interspersed with chattering notes. It may be delivered from a rock or in the pipit-like display flight already mentioned. The sub-song, used chiefly in the vicinity of the nest and probably partly an expression of conflicting emotions, is uttered by both sexes. England noted that both birds at the nest he photographed used this song as they approached, often with a beakful of food: he described it as a scratchy warble with musical interludes and reminiscent of the song of the Whitethroat (*S. communis*), that of the female being briefer and more interspersed with raucous alarm notes. Early in the breeding season, before the eggs are laid or during incubation, some or all of the birds of adjacent pairs may be watched during territorial disputes in which an insistent and high-pitched note *peeee*, often repeated, is much used. A shortened version of the same note, rapidly repeated as a piping *pee-pee-pee-pee*, is uttered as an alarm, sometimes interspersed with a typical wheatear *chack*. The white tail is continually spread with a bobbing action at these times. As with other wheatears, short flights from one prominent perch to another, jerky movements and a restless darting to and fro are regular features. The male spreads both tail and wings to show the white to full advantage during his ledge display.

REFERENCES

BANNERMAN, D. A. (1954): *The Birds of the British Isles*. Vol. 3. Edinburgh.
HOLLOM, P. A. D. (1960): *The Popular Handbook of Rarer British Birds*. London.

Notes on the behaviour of Whiskered Terns

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INTRODUCTION

THE FOLLOWING OBSERVATIONS were made at a colony of Whiskered Terns (*Chlidonias hybrida*) at La Tour du Valat in the Camargue, France, during the summer of 1959. My first visit to the colony was on 29th June, by which time there were already some young ones. I thus missed much of the early reproductive behaviour, but even at this date there were still some pairs with incomplete clutches and so observations could be made on most aspects of behaviour during incubation. In addition, I have included a few records made earlier by members of the staff of the Station Biologique de la Tour du Valat and any references to events before 29th June are based on these.

My notes as a whole are fragmentary and incomplete, but are interesting to compare with the very full study of the behaviour of the Black Tern (*Ch. niger*) by Baggerman, Baerends, Heikens and Mook (1956) in Holland. Throughout the following text my observations are presented against theirs and all references to the behaviour of the Black Tern relate to that paper, the terminology of which I have also followed. I was not able to distinguish the sexes of the birds I watched.

THE COLONY

The colony studied consisted of about 150 pairs and was situated in a fresh-water marsh almost completely overgrown with *Scirpus maritimus* (bulrush), *Myriophyllum spiciatum* (water-milfoil), *Potamogeton pectinatus* (pondweed) and *Ranunculus baudotii* (crowfoot) (Fig. 1). The nearest nests were about 50 metres from the edge of the marsh and the depth of water in the part occupied by the colony was 60-80 cm. (between 2 feet and 2 feet 8 inches) in the middle of July. The colony stretched over an area of about one hectare (2.47 acres), but the nests were in distinct groups within this area. The most compact group comprised 11 nests, the average distance between which was 220 cm. (about 7 feet 4 inches) and the minimum 100 cm. (about 3 feet 4 inches). Nests at less than about 100 cm. from one another, which have been recorded in the Camargue in previous years, seem to be at a disadvantage (see under REPRODUCTIVE BEHAVIOUR below). The other groups in the colony were more widely spaced and a number of nests belonged to no particular group at all. It should be added here that most of

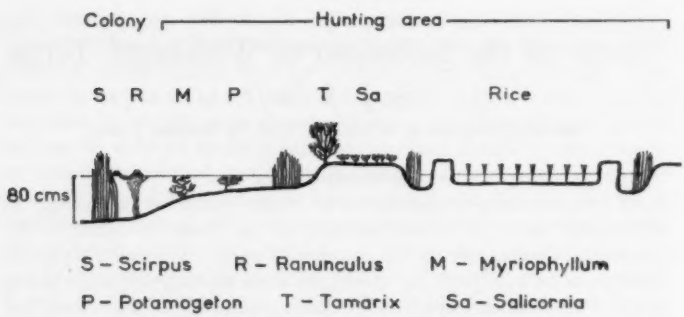

FIG. 1. The nesting and feeding biotopes of Whiskered Terns (*Chlidonias hybrida*) in the Camargue. The nests are loosely constructed of stems of bulrush (*Scirpus*) and are either floating on the water or on clumps of vegetation, often crowfoot (*Ranunculus*) (see below). The birds feed mainly in the rice-fields and in the shallow parts of the fresh-water marshes where they are up to about a foot in depth and largely overgrown with water-milfoil (*Myriophyllum*) and pondweed (*Potamogeton*) (page 562)

the Black Tern colonies watched by Baggerman and his colleagues in Holland numbered less than 15-20 pairs.

Whiskered Tern nests are very loosely constructed heaps of *Scirpus* stems, either floating on the water or on clumps of vegetation (often *Ranunculus*). They are gathered together without any real attempt at building, and they disintegrate very easily. They are added to throughout the season (see under INCUBATION below). Lomont (1945) considers that an essential condition for the establishment of a colony is the presence of herds of bulls or horses which, in passage and while feeding, leave many torn and broken reeds in the marsh. These are picked up by the terns for use in constructing their nests and Lomont believes that the birds are not strong enough to tear up the reeds themselves. However, Whiskered Terns nest in other areas (such as the Dombes in France) where there are no wild bulls or horses and those in the Camargue can be seen trying to pick up growing reeds, sometimes with success. Thus, while the terns in the Camargue make full use of reeds torn up by bulls and horses, the presence of these animals cannot be considered essential.

The only other birds nesting in the vicinity of the tern colony in 1959 were two pairs of Coots (*Fulica atra*).

SEASON, CLUTCH-SIZE, INCUBATION AND FLEDGING

In 1959 the Whiskered Terns occupied the colony from about 20th May onwards and the first egg was laid on 1st June. The following data on clutch size, incubation and fledging are based on observations

and nest-records at about 70 nests. Three eggs form the normal full clutch, and the occasional instances of four eggs probably involved two females. A few first clutches were of two eggs, however; later in the season the proportion of clutches of two eggs was higher and these were thought to be replacements. Eggs are laid on consecutive days and incubation begins when the clutch is complete. Male and female take equal shares in incubation and sit in turn for periods of about 25 minutes. The time between the laying of the last egg and the hatching of the first chick is 18-21 days, and the hatching of each brood is normally spread over about 24 hours. The young stay in the neighbourhood of the nest for the first week or so, taking refuge in adjacent clumps of bulrush whenever an intruder approaches. After this period they move from the immediate vicinity of the nest and wander until they are able to fly, three to four weeks later.

In the colony as a whole there was little synchronisation of breeding dates and eggs were found at any time from the beginning of June to the beginning of August. But within any single group the laying and hatching dates at the various nests were closely related. Thus, in the first part of the colony to settle down, 16 clutches were started in the period 1st-3rd June and these had almost all hatched by the 25th. On the other hand, a count of several groups on 4th July showed that 35 out of 59 nests had full clutches, while five had incomplete clutches, six had both eggs and young and were thus hatching, and 14 had young only. In another compact group all 11 nests hatched between 8th and 14th July; and in the most backward group (probably chiefly replacements) there were still six pairs with eggs and three with very small young on 23rd July, by which date many of the earliest young had been on the wing for more than a week and were already flying several kilometres to hunt.

This similarity of dates in any one group is probably the result of social stimulation. The close proximity of other birds displaying and threatening ensures that in each individual and in each pair the processes leading up to copulation and laying are synchronised. It seems that synchronisation is very effective in a group, and remarkably ineffective in the colony as a whole. It may be that a long breeding season has survival value in preventing too much competition in a species whose food seems to be available in much the same quantities throughout the summer. Many more data are clearly needed before these suggestions can be verified, however, and in particular the position of replacement clutches should be investigated.

FOOD AND FEEDING BEHAVIOUR

The food of the Whiskered Terns was not studied in detail, but incidental observations were made from hides and outside the colony.

Schifferli (1955) lists a small number of food items from the Camargue, including Marsh Frogs (*Rana ridibunda*), tadpoles, dragonflies and aquatic larvae of various sorts. In addition to these, I recorded two small Carp (*Cyprinus carpio*). The dragonflies are taken while at rest on the surface of the water.

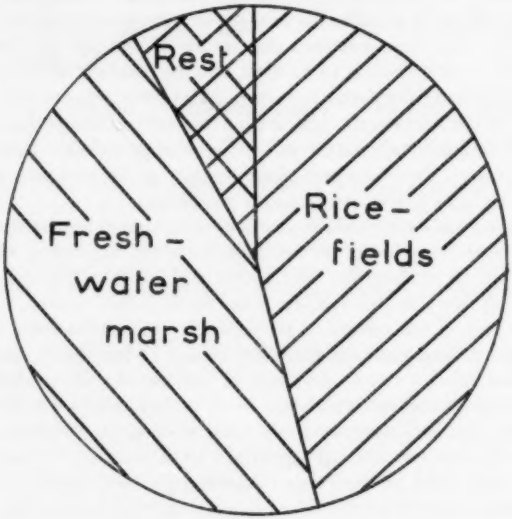

FIG. 2. The approximate comparative importance of the main feeding biotopes of Whiskered Terns (*Chlidonias hybrida*) in the Camargue (see below)

The terns fed regularly up to 4 km. (about 2½ miles) from the colony, and in large numbers at 2½ km. (about 1½ miles). The two main hunting areas were rice-fields (especially in the early stages when the rice was not too thick) and shallow parts of fresh-water marshes such as the one in which the colony was situated (Figs. 1 and 2). In the latter areas the terns hunted chiefly in places that were not more than about 30 cm. (one foot) in depth. Odd birds were occasionally recorded hunting in other biotopes, such as shallow canals, and once or twice I saw individuals on the dry ground, among the *Salicornia* (glasswort), where they seemed to be looking for food.

Baggerman and his colleagues remark that it is rare to see a Black Tern hunting alone. It is quite common to find Whiskered Terns hunting singly, but more usually these birds are grouped into definite

flocks which fly up and down together searching for food. They hunt in much the same manner as Black Terns, beating upwind low over the water, turning to fly high and quickly downwind, and turning again to repeat the process.

Schifferli (1955) mentions that Whiskered Terns almost always catch their food by plunge-diving (*Stosstauchen*), and this I can confirm. It is interesting in view of the fact that Black Terns seem always to swoop to the water. Whiskered Terns use both methods, but with them I have found swooping unusual. Dr. J. M. Cullen (*in litt.*) says that Arctic Terns (*Sterna macrura*) and Common Terns (*S. hirundo*) use both methods of feeding, depending on the depth of the water and the nature of the food. It should be remembered that there is a considerable difference between the bills of Whiskered and Black Terns (Fig. 7), which may well indicate differences in feeding methods.

OTHER ASPECTS OF NON-REPRODUCTIVE BEHAVIOUR

Whiskered Terns bathe quite often, sometimes immersing themselves completely in the water, shaking wings and head vigorously. This may be done in flight or after landing in a shallow pool of water. Black Terns appear to bathe less vigorously, dipping head and breast in the water while flying low. Bathing should not be confused with food-washing, an activity already recorded in several other species of terns. Whiskered Terns also sometimes wash their prey, both in flight and when perched on the edge of the nest.

In the same way as Black Terns, Whiskered Terns have rest-places, both temporary and more permanent. These are outside the colony itself and may even be as much as one or two kilometres away. At the rest-places birds preen, sleep and wash. I did not spend enough time watching such sites to see whether any reproductive activities were carried out there.

When a potential predator approaches the colony, all the terns fly up together, uttering the *kiriri* alarm call, and mob the intruder in a close flock, sometimes swerving round it in a "whirl-flight". However, easily the main predators on the Whiskered Tern colonies in the Camargue are Marsh Harriers (*Circus aeruginosus*) and this rarely has any effect against them. I also noted the terns reacting in this way to Black Kites (*Milvus migrans*) and once to a Herring Gull (*Larus argentatus*). Humans in the colony are mobbed, but no whirl-flight is performed.

REPRODUCTIVE BEHAVIOUR

High-flight

Baggerman and his colleagues have described in detail the "high-flight" of the Black Tern, in which a flock of between two and about twenty

birds ascends high into the air, flying with faster and jerky wing-beats. After splitting into groups of two or three, the flock levels out and then each group glides straight down on still wings, shooting up at the end of the glide just above the water or land. This flight is performed mostly during the period before nest-occupation, and only rarely after the start of incubation. It is thus chiefly a part of the pairing behaviour.

Although my observations on Whiskered Terns did not start until some way through the breeding season, this was so extended that there were still pairs at all stages, as already pointed out, and probably some unmated individuals as well, so that I was able to observe high-flights on numerous occasions. My observations do not permit too many generalisations, but it is apparent that there are some differences between these flights in the two species, although the essentials are the same.

In Whiskered Terns high-flights may sometimes include almost the whole colony. Thus on 11th July 1959 I watched a performance by about 300 birds; this at a time when a large number of pairs already had young. In this respect it is interesting to note that, while studying the North American race of the Black Tern (*Ch. n. surinamensis*), Cuthbert (1954) observed high-flights by almost the whole colony, followed by what was presumably the glide.

The high-flight of Whiskered Terns begins as several birds take off or stop feeding and join together. The number of performers may range from one to (as already remarked) almost the whole colony. The birds, calling a harsh *kiriririck* and occasionally a harsh and short *kek*, rise together in a tight group, sometimes to a height of 300 feet or more. They fly in a slightly unusual manner, beating their wings faster and more deeply than they normally do, so that a rather jerky action results. Some do not stay with the flock right to the top, but glide down earlier. The close flock splits up during the ascent or while levelling out or circling. The birds then glide down with stiff wings—sometimes straight down in the way that Black Terns do, and sometimes in spirals. At the bottom of the glide, which is often very fast, some shoot up in short, steep climbs to glide down again. Some may glide for as long as seven or eight minutes after the majority have returned to the colony. The whole glide is very quiet in comparison with the noisy ascent and it may well be that the birds do not call at all during it.

It is thus evident that the high-flight of the Whiskered Tern is very similar in general performance to that of the Black Tern. The whole activity is a part of the reproductive behaviour of the species. A comparable ascent and glide has been recorded in all terns so far studied, although there seems to be some difference in timing in the various species.

Fish-flight

The other aerial display common to most species of tern, the fish-flight, was not observed. My observations probably started too late in the season.

FIG. 3. The stooping posture of the Whiskered Tern (*Chlidonias hybrida*) with head down and tail raised. This is adopted on the nest by the incubating bird when its mate arrives and is sometimes accompanied by a soft crooning note (see below)

Stooping

The incubating bird sometimes "stoops" on the nest when the non-sitting bird arrives (Fig. 3). In Black Terns this movement is seen especially in the period between nest-occupation and the end of laying. A less intense form, probably corresponding to that which I saw among the Whiskered Terns, occurs during incubation.

In the Whiskered Tern the stooping posture is sometimes accompanied by a soft, low, crooning note, *kura-kura-kiu*. This, although slightly different in form, would seem to be homologous with the cooing note of the Black Tern, as it is also used in calling the young back to the nest.

Erect posture

During incubation a bird arriving at the nest sometimes adopts an "erect" posture if the other member of the pair is present. In this it stretches its neck upwards and forwards; its bill may be in any position from just below the horizontal to an angle of about 50° above it (Fig. 4). A bird which has just landed also often keeps its wings lifted. The position is sometimes adopted by both members of the pair and they do not then stand face to face, but half sideways to each other.

In Black Terns the movement is very similar and is seen most commonly before the beginning of incubation. During incubation it occurs less and less, and it ceases after hatching.

FIG. 4. The erect posture of the Whiskered Tern (*Chlidonias hybrida*) with neck stretched forwards and upwards and the bill at any angle from just below the horizontal (*right*) to about 50° above it (*left*). This may be adopted by the non-sitting bird when it arrives at the nest and then sometimes by the pair together (page 565)

Agonistic activities

Aerial chases in the colony are common and these sometimes develop into real fights. When threatening another in the air, a Whiskered Tern stretches its neck and head upwards (Fig. 5) and utters a high-pitched, loud *kwee*.

Incubating Whiskered Terns often threaten other terns flying in the neighbourhood. The distance within which strange birds are tolerated varies greatly, however, and on some days those flying past as much as five metres away may be threatened. When threatening another from the ground, a Whiskered Tern uses a hard, sharp *ku-ku* note. At the same time it may stretch its neck upwards and forwards, or it may retract it. It holds its wings slightly out from its sides and on one occasion I saw a threatening tern actually lift its wings. It ruffles the feathers of its crown, cheeks, nape, breast and occasionally upper wing-coverts and back; the ruffling of the white cheeks brings out the contrast with the black crown. Its head always faces the intruding tern.

It is noticeable that there is much more threatening between neighbouring nests after hatching than during incubation. This may be because there is far more coming and going when young are being fed. At nests which are less than about 100 cm. apart, the owners apparently spend so much time threatening and chasing each other that the chicks do not receive very much attention. Dr. L. Hoffmann tells me that he has observed a case where a brood was lost because of this, and it is possible that such losses may be quite frequent where nests are as close together as that.

PLATE 64. Male Black Wheatear (*Oenanthe leucura*) by nest-hole in wall of ruined house (plates 65-66), Spain, May 1960. Much the biggest European species, it is a slightly glossy black with a typical wheatear pattern on rump and tail, but the white also extends to the under tail-coverts (pages 553-558) (*photo: M. D. England*)

PLATES 65 and 66. Habitat of Black Wheatears (*Oenanthe leucura*), Spain, May 1960. These retiring birds nest in rocky plateaux, foot-hills, cliffs and gorges from sea-level to over 6,500 feet. Though such trees as oaks and hawthorns—and here palms and prickly pear—may not be far away (top left, view from the nest area), the

breeding territory is normally among barren rocks with little cover (top right). This nest was in an inside wall of the ruined house, in the furthest of the upper row of holes (bottom left). Below, male with a grasshopper (here the commonest food) and a berry; lizards and many scorpions were also taken (page 554) (*photos: M. D. England*)

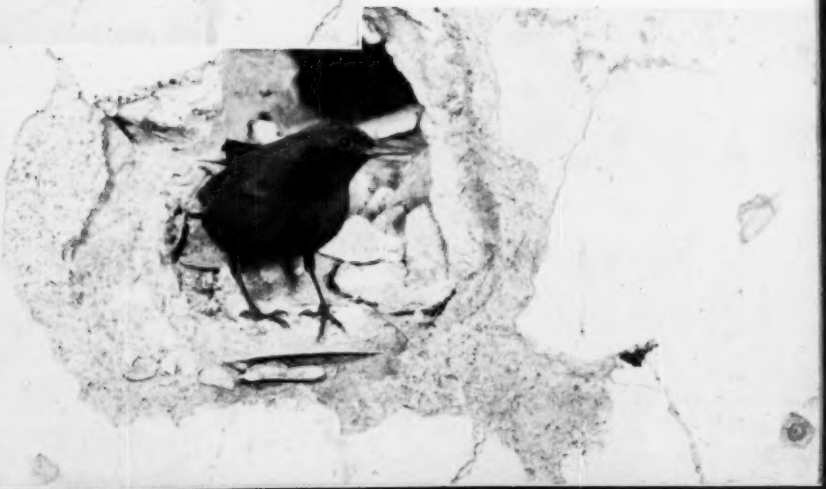

PLATE 67. Black Wheatears (*Oenanthe leucura*), Spain, May 1960, male above and female left and below. She is a duller and browner black and in this case, as can be seen, her tail-pattern was slightly different. Note the thrush-like stance below: they can look very like small Blackbirds and seem almost as big. The nest was about a foot in and made of coarse grasses with a finer lining. Note the stones forming a wall at the entrance: these are collected by the male, chiefly just below the site, and some are surprisingly large and heavy for a bird of this size; as many as 350 have been recorded at one nest (page 556). One of a number of bullets that were embedded in the walls of the ruined cottage (page 555) can be seen in the bottom right-hand corner above (*photos: M. D. England*)

FIG. 5. The posture of a Whiskered Tern (*Chlidonias hybrida*) threatening another in the air. Its head and neck are stretched upwards and it utters a loud and high-pitched note (page 566)

Hovering

As with Black Terns, Whiskered Terns hover for a short time before alighting on their nests or elsewhere. At the same time the *kee-kee* flight call changes to a harsh *ku-ku* which is very similar and perhaps identical to the threat call. It is possible that hovering birds have both attack and escape motivation, and that the hovering call is, in fact, a plain threat.

BEHAVIOUR DURING INCUBATION

Swerve-flight

As happens with many other species of terns, all the incubating birds in the colony sometimes suddenly fly up together perfectly silently and go some distance very low above the water, swerving from side to side. After a short period they start calling again, the flock breaks up and the birds return to their nests.

Nest relief

There is no fixed ritual of nest relief in Whiskered Terns, and the change-over is often effected without any ceremony at all. The relieving bird not unusually adopts an erect posture and occasionally the sitter does likewise. The relieving bird then sometimes follows with a stoop on the edge of the nest, in which case the other also stoops

FIG. 6. Mutual stooping by Whiskered Terns (*Chlidonias hybrida*) (see also Fig. 3). This sometimes occurs at nest relief (page 567)

slightly (Fig. 6). This resembles the "mutual stoop" of the Black Tern which, though chiefly a feature of the pre-incubation period, occurs in a less intense form later.

The reliever occasionally carries reeds (and on one occasion I saw a small fish brought). As the sitting bird leaves, it often starts to peck at the outside rim of the nest. Material is then sometimes picked up and thrown back on to the nest with a sideways jerk of the head. The effect of this is to compact the nest by bringing stems from the edge into the centre. After the change-over the bird which has been incubating sometimes stays for a short time on the edge, arranging the reeds there. The Dutch team observed this in the Black Terns they were studying and explained it by supposing that the brooding motivation of the sitting bird is not always completely exhausted when the time comes for the change-over. It is thus brought into a conflict situation that results in displacement building.

Adding to the nest

It was remarked above that during nest relief reeds may be thrown back from the edge of the nest into the centre. The nest is also constantly added to, even after the young have hatched, and throughout the season Whiskered Terns can be seen flying around the colony with reeds in their bills. This reinforcement of the nest is very necessary, for it is little more than a haphazard heap of reeds and it breaks up very easily; so much so that it has usually disintegrated within three or four days of the departure of the young and its ceasing to be cared for. Reeds are occasionally stolen from other nests. Some non-sitting birds have bursts of building activity and bring a large number of reeds to the nest in a short space of time. These are not carefully laid down, but are just dropped, sometimes even while the bird is in flight. The incubating tern often arranges the nest material with its beak.

The fact that Whiskered Terns carry nest material from a distance is of interest since Black Terns do not apparently do so; instead, they

seem to gather theirs from close at hand while they are on the sites of their nests. (I am indebted to Dr. J. M. Cullen for pointing out (*in litt.*) that most of the terns—except the Noddy (*Anous stolidus*)—have lost the habit of carrying nest material.) This should enable Whiskered Terns to nest in more open water than Black Terns can; and my impression from published descriptions of Black Tern colonies is that this is so, although I have never seen one myself. Certainly Whiskered Terns nest at times in very open water where all reeds have to be brought from a distance. Observations should be carried out in mixed colonies such as those on the Coto Doñana in Spain, to see whether this slight ecological difference exists.

FLEDGING

For the first day after it hatches, the chick stays on the nest even when the colony is disturbed. For the next week or so, it remains in the region of the nest but takes refuge in neighbouring clumps of reeds when frightened and, as it grows older, goes further at each disturbance. When danger has passed, the youngster usually returns to the nest of its own accord, but its parents sometimes call it back with the *kura-kura-kiu* note which is normally associated with the stooping position (page 565). Black Terns lure their young back with the corresponding call and adopt the stooping position (or something very like it) at the same time. Unfortunately I did not note whether the parents stooped when calling their young, but Schifferli (1955) recorded what was presumably the stoop in these circumstances. After the first week or so, the young no longer return to the nest but move around the colony being fed by their parents until they can fly.

For the first two or three days, the parents do not seem to recognise their own young and broods are sometimes mixed up at disturbances. After four or five days, however, a chick returning to the wrong nest is chased away by the owners. This suggests recognition, but it may be because the chick behaves differently in a strange nest. It also seems to recognise its parents at about the same time, but again this may merely be a response to an adult's behaving "in the right way".

A chick begs with its bill wide open, showing the orange-red inside of the mouth. Its white chin forms a conspicuous patch against the green nest as it stretches towards its parent, squeaking loudly. I took no detailed notes on the posture, but it seems similar to the Black Tern's.

CONCLUSIONS

Black and Whiskered Terns are fairly similar in appearance, the most obvious differences being the latter's white cheeks and heavier red bill (Fig. 7). On these characters Whiskered Terns seem to represent

a partly intermediate stage between the genus *Chlidonias* and the genus *Sterna*, and in this connection it should be noted that Moynihan (1959) includes *Chlidonias* in *Sterna*. He bases his conclusion on the partly intermediate characters of the Whiskered Tern and on the similarity of the recorded behaviour of the Black Tern to that of the sea terns.

The most noticeable feature of the behaviour of Whiskered Terns, on the data so far available, is its closeness to that of Black Terns. This might be expected in view of the conservative nature of gull and tern behaviour as a whole. Moynihan has pointed out that the primary sexual displays of the Laridae are very similar in almost all species, though primary hostile displays seem to differ greatly. Where two related species (such as Black and Whiskered Terns) are sympatric for part of their range and even form mixed colonies, differences are not as great as might be expected. Isolation seems to be maintained by small distinctions in morphology and voice. Arctic and Common Terns appear to be another species pair which are sympatric without interbreeding. Dr. J. M. Cullen (*in litt.*) believes that they also are kept distinct by slight morphological differences and their calls.

A feature of the behaviour of Whiskered Terns is the timing of the high-flight. Although I made no observations at the beginning of the season, it was obvious that high-flights were fairly common later on. According to Baggerman and his co-workers, Black Terns do not indulge in high-flights much after the completion of the clutch, but I do not think that this represents a real difference between the species. Some of the late season high-flights that I saw by Whiskered Terns may have been performed by unmated individuals, or have been due to a recrudescence of sexual behaviour by pairs with chicks.

Even the hostile displays of Black and Whiskered Terns resemble each other, though the former always threaten with a short neck, while the latter often stretch head and neck towards their opponents. The ruffling of the cheek feathers by Whiskered Terns emphasises the contrast between black crown and white cheeks.

It would thus seem that the most characteristic differences connected with the behaviour of the two species lie in their voices. My observations are not complete enough to make a detailed comparison, but most of the calls of the Whiskered Tern appear to be harsher and for some of them it is difficult to find homologies among those of the Black Tern. Fuller studies of the voice and of the earlier stages of the breeding of the Whiskered Tern are needed and it should also be borne in mind that there may be slight ecological differences as suggested by the Whiskered Tern's retention of the habit of carrying nest material and the distinctions in its feeding methods.

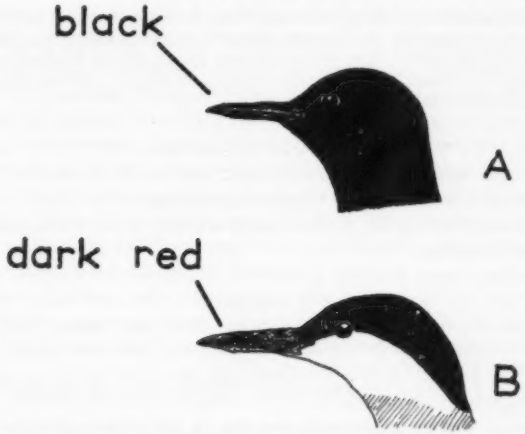

FIG. 7. Heads of (A) Black Tern (*Chlidonias niger*) and (B) Whiskered Tern (*Ch. hybrida*) to illustrate the differences in the size and colour of the bills and to show the white cheeks of the latter species

SUMMARY

(1) Observations were carried out on Whiskered Terns (*Chlidonias hybrida*) in the Camargue, France, in the summer of 1959. Most of the early reproductive behaviour was missed because the work was not started until late June. Comparisons are made throughout with the study by Baggerman *et al.* (1956) of the Black Tern (*Ch. niger*) and the terminology of that paper has been adopted.

(2) The colony studied consisted of about 150 pairs and covered an area of about 2½ acres in an overgrown fresh-water marsh. The nests were in groups and the minimum distance between them was a little over three feet. The full clutch was normally of three eggs. Incubation lasted 18-21 days and was by both sexes equally. There was little synchronisation of breeding dates in the colony as a whole, and hatching in different parts of it was spread over 2½ months. However, in any one group of nests the eggs were laid within a period of about six days and hatched within a similar time.

(3) Whiskered Terns in the Camargue feed mainly in fresh-water marshes and rice-fields. Their usual method of feeding (plunge-diving) seems to differ from that of Black Terns (swooping).

(4) Whiskered Tern nests are loosely constructed heaps of *Scirpus* (bulrush) stems; these are brought from some way away for the purpose. Most other species of terns, including the Black Tern, have lost this habit of carrying nest material from a distance.

(5) The high-flight seemed essentially the same as that of the Black Tern, except that at least in the later part of the season it was sometimes most of the colony that took part. Other behaviour patterns resembling those of the Black Tern almost exactly were stooping, the erect posture, the swerve-flight and the behaviour associated with nest relief. When threatening other individuals, however, the Whiskered Tern, unlike the Black, often stretches out its neck.

(6) The behaviour of Whiskered and Black Terns is thus very similar. The two species are sympatric and in some places form mixed colonies. Apart from possible ecological points, they seem to be kept apart solely by small differences in morphology and voice. A much fuller study is needed to confirm the tentative suggestions put forward in this paper.

ACKNOWLEDGEMENTS

Some of the breeding data in this paper are based on records kept by members of the staff of the Station Biologique de la Tour du Valat. I am also indebted to Dr. L. Hoffmann and Dr. J. M. Cullen for much useful information.

REFERENCES

BAGGERMAN, B., BAERENDS, G. P., HEIKENS, H. S., and MOOK, J. H. (1956): "Observations on the behaviour of the Black Tern, *Chlidonias n. niger* (L.), in the breeding area". *Ardea*, 44: 1-71.

CUTHBERT, N. L. (1954): "A nesting study of the Black Tern in Michigan". *Auk*, 71: 36-63.

LOMONT, H. (1945): "Les conditions de la nidification en Camargue de la Guifette moustac, *Chlidonias hybrida* (Pallas)". *Bull. Mus. Hist. Nat. Marseille*, 5: 106-111.

MOYNIHAN, M. (1959): "A revision of the family Laridae (Aves)". *Amer. Mus. Novit.*, no. 1928: 1-42.

SCHIFFERLI, A. (1955): "Beobachtungen an einer Weissbartseeschwalben-Kolonie in der Camargue". *Orn. Beob.*, 52: 25-38.

Notes

Aggressive behaviour of Barrow's Goldeneye with young.—Although Barrow's Goldeneye (*Bucephala islandica*) does not figure on the British and Irish list, the following notes may be of interest as an instance of an aggressive attitude during the breeding season.

From 8th to 14th July 1957, W. J. C. Conn, A. T. Macmillan and I were in camp by a small pool (measuring roughly 200×75 yards) on the east side of Myvatn, Iceland. On this pool a female Barrow's Goldeneye had three young, aged between one and two weeks. The ducklings were very independent and spent most of their time foraging about on their own under the banks, while their mother patrolled the centre of the water. On our first morning a female Scaup (*Aythya marila*) alighted on the pool, and immediately the goldeneye swam towards her—body crouched low on the water and eye burning a baleful green. The Scaup evidently recognised this as a threat attitude and showed signs of nervousness. The goldeneye dived and the Scaup sat up in even greater anxiety, then suddenly rose in a real hurry as the goldeneye erupted right underneath her.

Later the same day we came back to camp to find the same performance being repeated with a Tufted Duck (*A. fuligula*) in charge of a single duckling. The adult Tufted was eventually driven out on to the bank by a series of torpedo attacks and chases over the water, and then the goldeneye set about the duckling, pecking it viciously and holding it under water. Our arrival came too late to save the duckling, and later at the water's edge we found four small corpses which were almost certainly the rest of the brood that had suffered the same fate. The adult Tufted Duck made only the feeblest attempts to intervene.

During our stay at Myvatn we witnessed further attacks on a female Tufted Duck, a female Scoter (*Melanitta nigra*), a Scaup and a Scoter (attacked simultaneously and quickly left sitting on the bank like so many wallflowers at a dance), another female Scaup, and a third female Scaup with a brood of six small ducklings. Here again the mother was driven out of the water and the Barrow's Goldeneye then turned on the ducklings. The mother made half-hearted attempts to intervene, but these were largely ignored by the goldeneye who would undoubtedly have killed off the whole brood if we had not driven her off with a barrage of stones. On two occasions we saw the goldeneye drive off drakes of her own species, and once she evicted another duck Barrow's Goldeneye. In fact the only duck that were seen to visit the pool unmolested were a Mallard (*Anas platyrhynchos*) and a Teal (*A. crecca*) with brood.

We saw only two other Barrow's Goldeneye with broods while we were at Myvatn. One was on a small pool where there were no other duck. The other (with two young) was at the narrow entrance to a bay of the main lake and we watched this bird behaving in just the same way, driving a Scaup on to the bank and then setting on its ducklings.

Dr. Finnur Gudmundsson tells me that this aggressive behaviour on the part of the female is typical of Barrow's Goldeneye. I am not aware of any records of similar behaviour for the closely related European Goldeneye (*B. clangula*), and J. Delacour (*The Waterfowl of the World*, Vol. 2, pp. 180 and 186) gives both species an excellent character when breeding alongside other ducks in captivity.

D. G. ANDREW

Kestrel killing Turnstone.—Since few waders are recorded in *The Handbook* as prey of the Kestrel (*Falco tinnunculus*), I should like to record that on 22nd December 1957 I saw a female Kestrel attack and kill a Turnstone (*Arenaria interpres*) at Hilbre Island, Cheshire. It made off with the corpse, but dropped it in the sea.

J. A. MCCULLOCH

Grey Phalarope blowing bubbles.—On 3rd November 1959 we watched a Grey Phalarope (*Phalaropus fulicarius*) feeding in a fresh-water pool on Walney Island, Lancashire. Whenever its bill was below the surface, numerous bubbles rose and collected at that point. There were no aquatic plants where the bird was and, as the depth of water was too great for it to reach the bottom, the bubbles were certainly not liberated air-pockets or marsh gas. The bird was therefore apparently exhaling below water for some reason.

LEONARD COWCILL and ALLAN SMITH

Rubber band in Little Tern's stomach.—Further to G. R. Bennett's note on acute gastritis in a Puffin (*Fratercula arctica*) which had swallowed a number of rubber bands (*Brit. Birds*, 53: 222), I should like to record a similar experience of my own. Approximately six years ago, in the early autumn, I picked up the well-preserved body of an immature Little Tern (*Sterna albifrons*) at Rye, Sussex. Dissection revealed a red rubber band in a stomach which had well-marked acute ulcers and threads of fresh blood clot. Unfortunately I cannot recall whether there was blood in the gut.

A. G. HOCKEN

Little Owl taking Nuthatch.—On 7th July 1959, at Sway, Hampshire, I cleared out a nest-box in which Little Owls (*Athene noctua*) had reared three young. Among several bird-rings in it was one from a juvenile Nuthatch (*Sitta europaea*) which had been seen alive up to 28th June. This seemed a rather unexpected victim and the species is not specifically mentioned as prey in *The Handbook*.

EDWIN COHEN

Red-rumped Swallow in Kent.—On 21st May 1960, at Yalding gravel pits, Kent, we saw a Red-rumped Swallow (*Hirundo daurica*) flying with a large mixed flock of Swifts (*Apus apus*), Swallows (*H. rustica*), House Martins (*Delichon urbica*) and Sand Martins (*Riparia riparia*). These birds were attracted to swarms of insects that were coming off a load of rotting apples dumped by a local packing station. We erected two mist-nets, but unfortunately we failed to catch the Red-rumped Swallow although we trapped many birds of the other four species. However, in all we had it under observation for over an hour and down to ranges as close as three feet, so that we had plenty of opportunity to notice all the details.

It was roughly the size and shape of a Swallow, but the streamers of the tail were a little shorter. The upper-parts appeared brown, very dark on the crown, back and tail, and more of a "Sand Martin brown" on the wings; no trace of blue as in the common Swallow was noted. The rump was a very conspicuous pinkish-buff. The under-parts

were also pinkish-buff, but a little lighter. Its flight was markedly different and appeared to be "lazy" by comparison with that of the other birds it was accompanying. Because of this slower, almost flapping flight it could easily be picked out of the flock at ranges of at least 200 yards. It was not heard to call. A visit by other observers later in the afternoon failed to find the bird again.

E. G. PHILP and E. C. STILL

[Only eight previous records of this species in Britain and Ireland are now accepted. The last one was also in Kent and as recently as 1959 (*Brit. Birds*, 53: 222-223).—EDS.]

Notes on the Tennessee Warbler.—Of over fifty species of North American wood warbler (Parulidae), only six have so far been recorded in Europe: the Black-and-White (*Mniotilta varia*), Parula (*Parula americana*), Myrtle (*Dendroica coronata*) and Black-throated Green (*D. virens*) Warblers, the Northern Waterthrush (*Seiurus noveboracensis*) and the Yellowthroat (*Geothlypis trichas*). These species, like almost all the other American wood warblers, are quite different in appearance from any of the Old World warblers (Sylviidae). They should be recognised as "something different" by any experienced European observer and most can be readily identified by reference to R. T. Peterson's *Field Guides*. There is, however, one wood warbler which might easily be overlooked in autumn. The purpose of this note is to draw attention to the fact and to point out how the bird can be recognised, on the same lines as H. G. Alexander's "Field-notes on some Asian leaf-warblers" (*Brit. Birds*, 48: 293-299 and 349-356).

The species concerned is the Tennessee Warbler (*Vermivora peregrina*), which very closely resembles a leaf warbler (*Phylloscopus*) after the moult which occurs in July and August. In the spring and early summer it is quite different and unmistakable, being greenish above with a grey head and white under-parts and eye-stripe. Its breeding range covers most of Canada south of the tree-line, as far east as Newfoundland and Nova Scotia. Each of the six species of wood warbler mentioned above as having been recorded in Europe occurs as a breeding species in either Newfoundland or Nova Scotia or both, so the Tennessee Warbler seems as likely a candidate for North Atlantic drift as these birds. Its autumn migration begins in Canada in July and is over by early October, with the bulk passing in August.

At first sight a Tennessee Warbler in autumn looks very much like a Willow Warbler (*Ph. trochilus*) at the same season. The three best field-characters to distinguish it are (1) its call, (2) its definitely grey legs and (3) its one or two pale wing bars (the last not always present).

To deal first with the voice, the normal call in autumn while feeding and flying is a sharp, frequently uttered *zi* or *zi-zi*, more resembling

the call of a tit (*Parus*) than that of any European warbler. Several other wood warblers have similar calls. Usually in Canada the Tennessee Warbler occurs in parties, sometimes mixed with other warblers, so this call is likely to be a contact note which might not be heard at all from a stray waif on the wrong side of the Atlantic. Occasionally I have heard the note sharpen into a loud *chit* and sometimes a short song is uttered in autumn, consisting of a stuttering trill of repeated *chit* notes, changing pitch rapidly up and down and lasting only about one second. This is quite unlike the breeding song and I have assumed it comes from young birds.

Though its appearance in autumn generally very much recalls a Willow Warbler, it is a very variable species in detail. However, as mentioned, the legs are always grey (from medium to dark in shade) and they are slender, not stout as in *Hippolais*. The upper-parts are decidedly a greenish-olive, never brownish, and the rump and upper tail-coverts are even brighter, more yellowish. There is usually (but not always) a faint or fairly noticeable wing-bar formed by yellowish-white tips to the greater coverts, and occasionally pale tips to the median coverts give a second faint bar. The greenish back and the wing-bar are closer to features of the Arctic Warbler (*Ph. borealis*). However, the under-parts are definitely yellow in most birds, deepest on the throat and upper breast, palest on the chin, belly and under tail-coverts. Contrary to the description in the text-books, I have seldom seen a Tennessee Warbler in autumn with really white under tail-coverts. This may be because most are young (the juvenile has no white below) and they leave my latitude in the Province of Quebec (49° N) during July and August before the moult into first-winter plumage is complete. Dr. I. C. T. Nisbet (*in litt.*) has commented, "In my (rather limited) experience, this species is more apt to suggest a Wood Warbler (*Ph. sibilatrix*) than any other *Phylloscopus*, though its wings do not come so far down the tail, and there is no sharp contrast between the yellow breast and the white belly." I believe he has seen the species further south, in the United States, where perhaps the moult is further advanced. There is frequently an olive tinge on the breast, but this is faint. The pale yellow superciliary stripe is no more prominent than on the Willow Warbler, extending from the forehead to the eye and as far again behind the eye. The slender bill is brown, paler on the lower mandible but not very noticeably so. The tail and legs are a little shorter than those of the Willow Warbler, but otherwise the size and shape are very similar.

The behaviour strongly resembles that of the *Phylloscopus* warblers. On autumn migration, the Tennessee Warbler is found especially in bushes, though it also occurs in high trees and I have seen it on the ground. It searches rapidly and restlessly through the foliage, often

picking insects from the under-surfaces of leaves, sometimes hovering before a leaf or hanging upside-down to reach its prey, and it frequently flies from tree to tree. I have observed both wing- and tail-flicking in this species, but less so than is usual in *Phylloscopus* warblers. The Tennessee Warbler is not specially tame, usually appearing conscious of an observer at twenty feet.

During the course of several autumns in Canada, I have examined four Tennessee Warblers in the hand and I noted in each case that the under wing-coverts and axillaries were white fringed with pale yellow, thus contrasting with the yellowish breast and flanks. Having been unable to find any published details of the wing-formulae or measurements of this species or any other American wood warbler, I think it is of value to summarise these data from these four birds:

Wing-formulae (primaries): 1st 6-8 mm. shorter than longest primary covert, 3rd and 4th longest and equal, 5th 2-2.5 mm. shorter, 6th 5-7 mm. shorter, 7th 8-10.5 mm. shorter, 8th 10-12 mm. shorter, 9th 11-14 mm. shorter, 10th 14-16 mm. shorter, 2nd between 4th and 5th (3 birds) or equal to 5th (1 bird). Emargination on outer web of 3rd, 4th and 5th (less noticeable on 5th than on other two). *Measurements:* wing 59-67.5 mm., tail 37-42 mm., tarsus 16-17.5 mm., bill from skull 11.6-13.0 mm.

In wing-formulae and measurements, as well as in several aspects of plumage colour, the Tennessee Warbler seems to be closest to the Arctic Warbler among the genus *Phylloscopus*. This may be due to a convergence of characters, but I take the view that it more likely indicates common descent, especially as the Arctic Warbler is the only member of its genus to extend its range into North America (Alaska).

It is perhaps worth mentioning that another wood warbler, the Orange-crowned Warbler (*V. celata*), somewhat resembles the Tennessee Warbler in the autumn. The head and upper-parts are greyer, however, and contrast less with the under-parts, which are very indistinctly streaked. This species seems much more unlikely to occur in Europe in any case, as it does not breed east of Manitoba and is found only in small numbers on migration in the north-eastern United States and eastern Canada. Dr. Nisbet has also commented, "Some Black-throated Blue Warblers (*D. caerulescens*) also look much like *Phylloscopus* warblers, even in spring. This is a larger species, however (larger than an Arctic Warbler); its upper-parts are darker, brownish or greyish-green, and its eye-stripe is comparatively faint; some also show a light spot at the base of the primaries. This species also has a sharp *chit* note, less sibilant than a Tennessee's." I have only seen this bird once apart from adult males (which are entirely different from the plumage described above). It was very distinctive, being dark above and having a dark cheek contrasting strongly with a pale eye-stripe and pale buffish under-parts. I did not think it resembled a *Phylloscopus* warbler.

P. W. P. BROWNE

Goldcrest eating bread and fat.—In January 1959 I was interested to see a Goldcrest (*Regulus regulus*) at a bird-table at Par, Cornwall, and, since *The Handbook* gives "chiefly spiders and insects, their larvae and eggs . . . and bud scales" as the food of this species, I asked Miss Abson, who lives in the house, to note precisely what the bird took. She later reported that it was a regular visitor to the table, that after pecking at seeds on one occasion it took no further notice of them, and that it regularly and eagerly ate soft bread and fat.

JULIAN HUXLEY

Reviews

The Isle of May. By W. J. Eggeling. Oliver & Boyd, Edinburgh and London, 1960. xiv+280 pages; 20 photographic plates. 30s.

The firm of Oliver & Boyd has for some time been earning a deservedly high reputation for the publication of natural history books of fine quality, a reputation that stands to be enhanced by Dr. W. J. Eggeling's *The Isle of May*, which sets a new standard for island literature. To many readers of *British Birds*, the Isle of May will be known solely as "the other Scottish bird observatory". It has, however, a long and fascinating ecclesiastical and civil history, to which the earlier chapters of the book relate, detailed by an author who has known and loved his island from boyhood, and who has taken part in the episodes which have gone to form its more recent history.

And what a chequered history it has had! Of massacre and martyrdom, obscured in the mists of lore and legend; of being the site of a priory and chapel, fully documented from the twelfth century, maintained as a religious house until 1549, and dependent, curiously, for a century and a half upon the Abbey of Reading; of being a place of pilgrimage for barren women, though if Dr. Eggeling had read the account in Gordon's *Ecclesiastical Chronicles for Scotland* he would have known that the cure lay not in the virtues of the Pilgrims' Well but in a "Recipé possessed by the lusty Friars, though some of the women thought that the Air did it". Later a refuge of Jacobites, it afterwards degenerated to become a haunt of pirates, smugglers and wreckers, and supported for a brief period a small fishing village. The island also came into prominence in 1636 as the site of the first warning beacon to shipping on the Scottish coast, a simple coal-burning flare which consumed fuel at the prodigious rate of three tons a night in stormy weather and was only as late as 1816 replaced by a modern lighthouse, the one in existence today.

No less romantic is the history of the bird observatory, projected and brought into being by a group of Edinburgh schoolboys, later to become the first co-operatively manned station of this kind in Britain. A large section of the book deals with the work of the observatory and with the island's breeding and migratory birds (including a list of recoveries of those ringed there), but other branches of natural history are covered in an equally able manner. The latter chapters comprise an annotated catalogue of insects, flowering plants, ferns, mosses, liverworts, lichens and fungi. There is even room for a section on rock climbs, and a review would be incomplete without reference to the anthology from the observatory log, which includes gems from the works of an (almost) anonymous Scottish poet. In conclusion, there is a useful classified bibliography and a list of the island's place names.

The author of this book successfully fulfils the dual role of historian and systematist, combining a readable account of the island's history with an orderly work of reference which will undoubtedly become a model of its kind in the future. I.D.P.

Wideawake Island. By Bernard Stonehouse. Hutchinson, London, 1960. 260 pages, with photographs and line drawings. 35s.

This book on the British Ornithologists' Union Centenary Expedition to Ascension Island has the refreshing merit of containing almost no scientific data (there is only one table in it) and it is thus a most eminently readable and humorously written account of the activities of a group of people who spent eighteen months on a remote island in the Atlantic. Ascension is not well known and its chief peculiarity is the unusual breeding cycle of the Sooty Tern or Wideawake at a regular interval of between nine and ten months. Why should the Sooty Tern adopt this curious cycle at just this one place? In the Indian Ocean, similarly on the Equator, it nests annually just like any other self-respecting bird. On the other hand, on certain Pacific islands it breeds twice in a year, though there two separate populations may be involved. This book tantalises us by offering no real answer to all this, though it may help to underline the problem. It is suggested that the Sooty Tern may complete its physiological processes (including moulting) in less than one year and thus be able to breed at intervals of ten lunar months—a special "internal rhythm"—but this makes no sense at all. Equatorial birds almost always breed annually, being dependent only, as far as is known, on external factors such as food supply and rainfall. J. P. Chapin first drew attention to this phenomenon on Ascension; perhaps Dr. Stonehouse will try to explain the fascinating problem more fully in the scientific papers still to come.

Besides readability and a style unusual in the writings of modern ornithologists, the book has the merit of simplicity and interest. It is not conjectural, except in a few last paragraphs; it is a factual account of an expedition. We learn a lot about the other birds. The list of species is meagre, as always on oceanic islands, and the selection is astonishingly similar to that found on all islands on the Equator. It includes two species of bo'sun-birds, Frigate-birds, Masked and Brown Boobies, Noddy and Fairy Terns, shearwaters and, amongst land-birds, introduced Canaries and Mynahs. The expedition consisted of several members, each of whom alloted himself certain species to study, one of the objects being to compare their breeding cycles with those of the Sooty Tern, and the enthusiasm and ability of these people is self-evident on every page. The admirable example set by Mrs. Stonehouse, who could do everything from mending the Government House curtains to weighing the maladorous newly-hatched Frigate-bird, must inspire all expedition wives.

The photographs are very good indeed and, what is more important, illustrate the story completely. There is an excellent index, but there should also have been a brief bibliography. The book is a most important addition to the library of anyone interested in remote islands or sea-birds, and every ornithologist will sympathise with Dr. Stonehouse when he was asked on board ship, "Oh, bird-watchers. Do you know Peter Scott?" M.W.R.

Bird Song. By Ludwig Koch. Talking Books in association with Methuen, London, 1960. One 7-inch long-playing record (33 r.p.m.) with 12-page illustrated booklet. 8s. 6d.

This "talking book" is obviously intended primarily for children, but it will also have value as an introduction to bird song for other beginners. In this, the first book of a promised series, the intention is to teach reader-listeners the songs of "ten of our very common British birds, which you can hear in town, in your garden and in the field". They include House and Tree Sparrows, Dunnock, Carrion Crow, Rook, Raven, Starling, Song and Mistle Thrushes, and Blackbird (though Raven and Tree Sparrow hardly fit into the category defined). Thus only residents are dealt with on this first record—an excellent scheme to enable pupils to get in some basic listening before the warblers and other summer visitors arrive, but the opportunity has been largely missed. Clear-cut songs which can usually be heard individually and which offer the novice some chance of early success (e.g. Robin, Great Tit, Chaffinch, Yellowhammer and Woodpigeon) are totally disregarded, and far too much stress is laid on aspects of bird voices which should come at a much later stage in the student's development. Thus a great deal of the very first lesson is devoted to

the various sounds which a House Sparrow may emit—with individual interpretations which may not please every biologist.

The recordings themselves, as one would expect, are excellent; two, those of a Mistle Thrush in a thunderstorm and a Raven against a background of Atlantic breakers, are wonderfully true and evocative, although in the latter case the rollers almost overpower the Raven. Since there is a commentary on the record, it might have been used to advantage for brief identification of some of the species responsible for background song, particularly when, as with the Dunnock, they come within the scope of this book.

Illustrations are adequate, but not outstanding in either colour or drawing, and in some cases, as with the two sparrows and the two thrushes, they fail to emphasise the salient plumage differences between species that may be confused. W.D.C.

Bird Migration: A Bulletin of the British Trust for Ornithology. Edited by Kenneth Williamson. Published twice yearly, January and August. 3s. 6d. per issue.

In January 1958 a grant from the Nuffield Foundation enabled the British Trust for Ornithology to take two important steps to ensure a fuller and more coherent study of migration in Britain. The first was to appoint Kenneth Williamson as Migration Research Officer and the second was to start publication of a bulletin devoted entirely to migration. The new journal is edited by the Migration Research Officer and, as now evolved, each issue summarises the preceding migration both generally and individually by observatories, and includes additional articles on movements of special note and other subjects linked to the main theme.

The first issue, published in December 1958, was concerned with the autumn migration of 1958 and included reports from 19 observatories and two other temporary stations; the fourth and latest issue, published in August 1960, covered the spring movements of 1960 at no less than 31 fully-fledged observatories and watch-points. A glance at the maps showing the positions of the stations reported on in these issues shows clearly how the increase in their number has improved the coverage of the British and Irish coastlines by migration students. Nowhere is this more obvious than in the south of England where four observatories and trapping stations now cluster round the Isle of Wight and its waters. Serious gaps remain, particularly in north-east and west Scotland and western Ireland. However, through the bulletin, the Migration Research Officer continues to encourage the discovery of new places. The outstanding successes of the Cape Clear exploration would be much less significant if they could not be presented in comparison with the records of the Irish

Sea stations. Nowhere else but in *Bird Migration* can such records receive the immediate attention that is their due.

The records from every observatory for the migration season under review are afforded similar treatment, the movements being summarised chronologically by regular correspondents from each station. Full descriptions of the periods of passage, in many cases correlated to weather conditions, are given and special mention is made of any rarities or unusual occurrences. In this way an invaluable picture of each observatory's work is obtained, allowing the reader to grasp the real dimensions of avian migration in a way never possible before. There has been considerable variation in the space afforded to certain observatories from issue to issue and irritating differences in the style of reporting are not yet fully resolved. By and large, however, a good balance is struck and the whole united by the editor's general analyses of each migration. These have proved illuminating on several occasions, notably when dealing with the difficult problem of "overshooting", caused, it is suggested, by a migrant's failure to resolve the clash between the external and internal factors of optimum passage conditions and a spent migrational urge. Sensibly, less complicated subjects, such as godwit movements and the continued internal expansion of the Collared Dove, have also been given space.

Of the more important papers published so far in conjunction with the individual observatory reports, no ornithologist, bird-watcher or ringer should miss the description of a considerable passage of Redwings at sea off Iceland in April 1959 (vol. 1, no. 2, p. 81), the review of Meadow Pipit migration and systematics (vol. 1, no. 2, p. 88), the discussion of moult as a study in field taxonomy (vol. 1, no. 4, p. 171) and the study of ringing recoveries as an aid to interpreting bird movements (vol. 1, no. 4, p. 176). The last contains some well-conceived maps showing certain species' migration routes. Other diagrams and schedules are used frequently throughout the journal to illuminate the text. One feels that perhaps more use might be made of this sort of presentation, especially with regard to the occurrence patterns of eastern rarities.

It is as well that the new bulletin recognises its own weakness, that it is based on purely coastal observations and cannot at the moment hope to present a total summary of movements into, through, over and out of Britain and Ireland. Nevertheless, it is a great bound in the right direction and the observations of a few inland bird observatories are all that are needed to complement the material already available for interpretation.

The "long-felt need" for a journal to give a more adequate expression to migration studies has been well met. No one interested in this still miraculous phenomenon should lack its stimulus. D.I.M.W.

Letters

International ornithological congresses

Sirs,—In his review of the *Proceedings of the XII International Ornithological Congress* (*Brit. Birds*, 53: 447-452) your reviewer makes some most relevant observations concerning the present nature of these meetings. While I agree with his points entirely, I should like to suggest that there is another aspect of the subject which deserves particular attention in this country—the nature of the British contribution to the Congress. As your reviewer points out, we provided nearly a quarter of the participants, so presumably we must take at least an equal proportion of the responsibility for the consequent character of the proceedings, and such features as the absence of too many leading ornithologists, the appearance of too much dead wood on the agenda, and the presence of far too many passengers in search of a cheap organised holiday at the expense of the host country.

I think I could go further than that. On the last day of the Helsinki Congress I was privileged to listen to a group of the most distinguished foreign ornithologists discussing their impressions of it. It was generally agreed that while the Finns in general and Dr. von Haartman in particular had put up a remarkably fine performance, it was unfortunate that the Congress had been dominated to such an extent by people of two nationalities, physically by the British, intellectually by the Germans. This point is amply demonstrated by a comparison of the number of people of different nationalities attending the Congress with the number of papers which they subsequently published in the *Proceedings*. Numerically the British far outnumbered everyone else, followed by the Germans, Finns, Americans, Swedes, Swiss and Dutch in that order. The Germans eventually produced by far the largest number of papers, followed by the British, the Americans, the Russians and the Swiss; it is hardly surprising that the Scandinavians were now relatively less prominent, but I am surprised to observe that the Dutch are nowhere. This might merely indicate that the Germans read too many papers while we had better taste, were it not for the fact that they produced a number of the best ones while we produced if anything rather more of the worst. In fact, I fear that the main British contribution to the agenda was to ignore the tedious discussions being conducted by unintelligible foreigners and rush about in noisy flocks busily ticking off the names of strictly British rare birds and prominent personalities on little lists while waiting impatiently for the start of the excursions. The best British ornithologists stayed at home and held another conference all by themselves at Cambridge the following

TABLE—A COMPARISON OF THE NUMBER OF PARTICIPANTS OF DIFFERENT NATIONALITIES AT THE XII INTERNATIONAL ORNITHOLOGICAL CONGRESS WITH THE NUMBER OF PAPERS WHICH THEY READ

There were 98 papers, so the number of papers per country and the percentage composition of all papers are approximately the same.

Nation	Participants	Percentage of total	Papers	Nation	Participants	Percentage of total	Papers
Australia	1	0.2	2	Netherlands	22	4	0
Canada	8	1.6	1	Norway	5	1	1
Czechoslovakia	3	0.6	2	Poland	3	0.6	2
Denmark	12	2.4	3	South Africa	4	0.8	0
Finland	60	12	4	Spain	16	3.2	2
France	12	2.4	4	Sweden	42	8	2
Germany	83	17	21	Switzerland	25	5	6
Great Britain	110	22	14	U.S.A.	59	12	12
Hungary	2	0.4	4	U.S.S.R.	9	1.8	9
Italy	15	3	1	Others	20	4	8

spring, where they read all the papers that could have restored our reputation at Helsinki.

This appears to me a deplorable state of affairs, coinciding as it did with the orgy of national self-congratulation which marked the anniversary celebrations of the British Ornithologists' Union and your journal, and I should like to suggest to my seniors who manage these things that it is time we rid ourselves of our complacency and insularity and took more positive steps to see that British ornithology is represented more worthily in international affairs in future. In particular, it seems to be generally agreed that international congresses are becoming overpopulated, and as the worst offenders we might very well take the lead in urging the International Ornithological Committee to restrict the numbers of each nationality who are allowed to attend to a definite quota nominated by the senior ornithological societies. It would then be up to our senior societies to act together to make sure that this country is represented by all the most suitable people and only the most suitable people in future, before we smother or distort the character of this valuable international function entirely.

W. R. P. BOURNE

European records of Ross's Gull

Sirs,—May I correct a statement (*Brit. Birds*, 53: 445) concerning the number of records of Ross's Gull (*Rhodostethia rosea*) in Europe? An adult was shot on 5th December 1955 on the island of Fyn in Denmark, the first record for that country (*Dansk Orn. Foren. Tidsskr.*, 51: 132-3) and it therefore appears that the Dutch bird (*Brit. Birds*, 52: 422-4 and plates 66-69; also 53: 95) was the fourteenth and hence the Northumberland bird (*Brit. Birds*, 53: 444-5) the fifteenth record for Europe.

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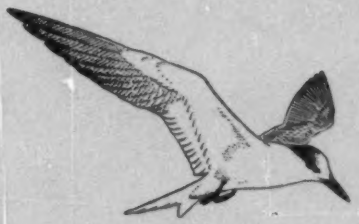

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